Complete Summary

GUIDELINE TITLE

Urinary tract infection.

BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. UMHS urinary tract infection guideline. Ann Arbor (MI): University of Michigan Health System; 1999 Jun. 7 p. [6 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Uncomplicated urinary tract infection
- Recurrent urinary tract infections
- Asymptomatic bacteriuria
- Acute uncomplicated pyelonephritis
- Urinary tract infection in pregnancy

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Family Practice
Infectious Diseases
Internal Medicine

Nephrology
Nursing
Obstetrics and Gynecology
Urology

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To implement a cost-effective strategy for uncomplicated urinary tract infection (UTI) in women.

TARGET POPULATION

Adult women with uncomplicated urinary tract infection

INTERVENTIONS AND PRACTICES CONSIDERED

1. Diagnosis
    - Diagnosis based on symptoms and patient history
    - Laboratory diagnosis
        - Dipstick analysis for leukocyte esterase
        - Nitrite testing by dipstick
        - Microscopic examination of unstained, centrifuged urine under 40Â´ power
        - Urine culture
    - Pelvic examination and physical exam
    - Urologic structural evaluation
2. Antibiotic treatment (Trimethoprim/sulfamethoxazole (TMP/SMX); Trimethoprim; Quinoline (Ciprofloxacin; Norfloxacin; Ofloxacin); Amoxicillin; Nitrofurantoin; Macrobid, Cephalosporin)
    - Longer (7-10 day) courses of oral antibiotics
    - Shorter courses (3-5 days) of oral antibiotics
    - Single-course antibiotic regimen
    - Prolonged (2-6 weeks) courses of antibiotics
3. Follow-up urinalysis and urine cultures
4. Telephone triage and nurse-managed evaluation
5. Education of patients about reinfection
6. Prophylaxis and self initiated therapy

MAJOR OUTCOMES CONSIDERED

- Assessment of diagnostic tests (sensitivity, specificity, predictive value, validity)
- Response to treatment (cure rate, symptom relief)
- Drug side effects

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The literature search for this guideline was conducted prospectively in MEDLINE (U.S. National Library of Medicine) using the major keywords of urinary tract infections (including bacteriuria, pyuria, or schistosomiasis haematobia), guidelines, controlled trials, published in the last 5 years, and adult women. The search was conducted in components each keyed to a specific causal link in a formal problem structure (available upon request). The search was supplemented with references in the current literature to studies published more than 5 years ago. The search was a single cycle.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of evidence reflect the best available literature in support of an intervention or test:

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational data
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Conclusions were based on prospective randomized clinical trials (RCTs) if available, to the exclusion of other data; if RCTs were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost-effectiveness studies. One study was a prospective randomized trial comparing the outcome of 3-day regimens of trimethoprim, sulfa, nitrofurantoin, cefadroxil and amoxicillin in women with cystitis. Trimethoprim/sulfa was shown to be more effective 80% (vs. < 67%) and less expensive than the other regimens.

Another study, a before-and-after study with concurrent control groups at 24 primary care clinics to assess the effect of a telephone-based clinical practice guideline for managing presumed cystitis, was reviewed. Women 18 to 55 who met specific criteria were managed without a clinical visit or laboratory testing. Guideline use decreased laboratory utilization and overall costs while maintaining or improving the quality of care.

For more details, refer to the Annotated References section of the original guideline document.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

University of Michigan Health System (UMHS) guidelines are reviewed by leadership in departments to which the content is most relevant. This guideline concerning urinary tract infection was reviewed by members of the following departments: General Medicine; Infectious Diseases; Family Practice; Medical Education; Ambulatory Care Nursing; and Obstetrics & Gynecology.

Guidelines are approved by the Primary Care Executive Committee (PCEC) and the Executive Committee of Clinical Affairs (ECCA).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from National Guideline Clearinghouse (NGC): The following key points summarize the content of the guideline. Refer to the full text for additional information, including detailed information on diagnosis, treatment regimens and costs.

The levels of evidence [A-D] are defined at the end of the Major Recommendations.

Diagnosis:

- History. Diagnosis is made primarily by history. In women with dysuria and frequency, in the absence of vaginitis, the diagnosis is urinary tract infection (UTI) 80% of the time [C*].
- Phone triage. In women with prior history of uncomplicated urinary tract infections (UTIs), consider phone triage [C*].
- Urinalysis. Urinalysis for detection of pyuria by dipstick or microscope has a sensitivity of 80-90% and a specificity of 50% for predicting UTI [B*].
- No urine culture. Urine culture is NOT indicated in the vast majority of UTIs. Urine culture (UC) has a sensitivity of 50% (if threshold for positive is $>10^5$ organisms); sensitivity can be increased to >90% if threshold is $>10^2$ organisms [C*]. Consider urine culture only in recurrent UTI or in the presence of complicating factors.

Treatment:

- First line
  - three days of trimethoprim/sulfa [A*].
- Second line:
  - three days of trimethoprim [A*].
  - three days of quinolone (contraindicated in pregnancy) [A*].
  - seven days of nitrofurantoin, amoxicillin, 1Â° cephalosporin [A*].

Follow-up:

- No tests if asymptomatic.
  No laboratory follow-up is necessary if asymptomatic [B*].
- For recurrent UTIs.
  In patients with recurrent UTIs (> 3/year):
  - consider prophylaxis/self-initiated therapy [A*].
  - urologic structural evaluation rarely indicated [D*]

*Definitions

Levels of evidence for the most significant recommendations:

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Decision analysis
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

An algorithm is provided in the guideline document for the diagnosis and management of urinary tract infection (UTI).

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence for each recommendation is given in brackets following the recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

1. Clinical care resources are utilized appropriately and good clinical outcomes are obtained when a cost-effective strategy is used for the diagnosis and treatment of uncomplicated urinary tract infection.
2. A review of 28 treatment trials of adult women with uncomplicated cystitis concluded that no benefit was achieved by increasing the length of therapy beyond 5 days. Specific benefits of shorter course (<5 days) antibiotic therapy include:
    - Decreased costs of antibiotics
    - Improved patient compliance
    - Decreased adverse effects of antibiotic treatments (e.g., amoxicillin-associated vaginitis)
3. A recent study in Seattle examined a phone triage guideline. Use of the guideline decreased cost and increased appropriate antibiotic use without any increase in adverse outcomes.

POTENTIAL HARMS

Side effects of antibiotic treatment include rash, nausea, diarrhea, and vaginitis. Adverse effects associated with the use of trimethoprim/sulfamethoxazole (TMP/SMX) increase markedly if treatment is continued past 3 days.

Subgroups Most Likely to be Harmed:

Quinolones should not be used during pregnancy (U.S. Food and Drug Administration [FDA] Category C; see the guideline document for descriptions of FDA pregnancy risk categories for drugs).

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining the same results. The ultimate judgement regarding any specific clinical procedure or treatment must be made by the physician in light of the circumstances presented by the patient.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

University of Michigan Health System. UMHS urinary tract infection guideline. Ann Arbor (MI): University of Michigan Health System; 1999 Jun. 7 p. [6 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Jun

GUIDELINE DEVELOPER(S)

University of Michigan Health System - Academic Institution

SOURCE(S) OF FUNDING

Internal funding for University of Michigan Health System (UMHS) guidelines is provided by the Office of Clinical Affairs. No external funds are used.

GUIDELINE COMMITTEE

Urinary Tract Infection Guideline Team

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Members: Steven Gradwohl, MD (Team Leader); Carol Chenoweth, MD; Karen Fonde, MD; Van Harrison, PhD; Kathy Munger, BSN, RN; Lauren Zoschnick, MD.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The University of Michigan Health System endorses the Guidelines of the Association of American Medical Colleges and the Standards of the Accreditation Council for Continuing Medical Education that the individuals who present

educational activities disclose significant relationships with commercial companies whose products or services are discussed. Disclosure of a relationship is not intended to suggest bias in the information presented, but is made to provide readers with information that might be of potential importance to their evaluation of the information.

Team Members:

Carol Chenoweth, MD, Roche Labs, Speakers Bureau

Karen Fonde, MD (None)

Steven Gradwohl, MD (None)

Van Harrison, PhD (None)

Lauren Zoschnick, MD (None)

Kathy Munger, BSN, RN (None)

GUIDELINE STATUS

This is the current release of the guideline.

An update is not in progress at this time.

GUIDELINE AVAILABILITY

Electronic copies: Available for download (in Portable Document Format [PDF]) from the University of Michigan Health System Web site. Continuing Medical Education (CME) information is also available.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on August 21, 2000. The information was verified by the guideline developer on November 22, 2000.

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